

# EUROPEAN PATENT OFFICE

## Patent Abstracts of Japan

PUBLICATION NUMBER : 03286566  
 PUBLICATION DATE : 17-12-91

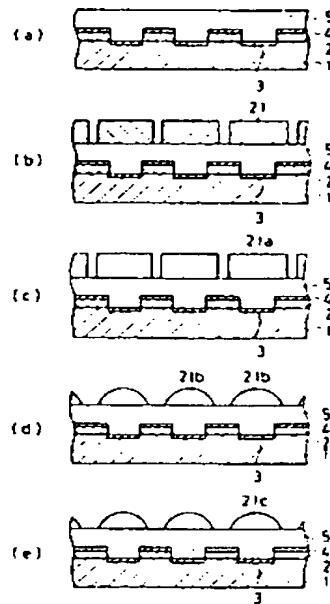
APPLICATION DATE : 03-04-90  
 APPLICATION NUMBER : 02089687

APPLICANT : IWATE TOSHIBA ELECTRON KK;

INVENTOR : YANAGI RYUICHI;

INT.CL. : H01L 27/14

TITLE : MANUFACTURE OF SOLID-STATE  
 IMAGE SENSING ELEMENT



**ABSTRACT :** PURPOSE: To keep the precise, stable lens-like cross sectional shape for a long period of time by coating photosensitive layers and light-intercepting layers in common with light transmission layers, forming thermally deformable resin layers at opposing positions of the upper surfaces of these transmission layers to the photosensitive layers, and thermally-deforming these resin layers by heating into converging bodies having lens-shaped cross-sections.

**CONSTITUTION:** Charge transmission path layer 2 composed of N<sup>+</sup> layers and photosensitive layers 3 composed of photodiodes are formed on a semiconductor substrate 1 made from P-type Si. And the upper surfaces of the charge transmission path layers 2 are coated with light-intercepting layers 4 having a good light reflectance. Next, the light-intercepting layers 4 and photosensitive layers 3 are coated in common with light transmission layers 5. At the opposing positions of the upper surfaces of these layers 5 to the photosensitive layers 3, thermally deformable resin layers 21 with a specified thickness are formed. And thermally deformable transparent resin layers 21a are made by irradiating the whole surfaces with ultraviolet rays. Then these layers 21a are made into converging bodies 21b having lens-shaped cross sections by heating them for a specified time. By doing ultraviolet hardening treatment of these converging bodies 21b, they are made into converging bodies 21c having increased heat resistance.

COPYRIGHT: (C)1991,JPO&Japio

This Page Blank (uspto)